

REMARKS

The present Amendment amends claims 1, 3, 5, 10, 11 and 13 and leaves claims 7-9 and 12 unchanged, cancels claims 14-18 and adds new claims 19-23. Therefore, the present application has pending claims 1, 3, 5, 7-13 and 19-23.

Claims 1, 3, 5, 7, 8, 10 and 14-18 stand rejected under 35 USC §103(a) as being unpatentable over Nishizawa (U.S. Patent No. 6,519,598) in view of Suzuki (U.S. Patent No. 6,125,304); claims 9 and 12 stand rejected under 35 USC §103(a) as being unpatentable over Nishizawa in view of Brown (U.S. Patent No. 6,636,808); and claims 11 and 13 stand rejected under 35 USC §103(a) as being unpatentable over Nishizawa in view of Suzuki and further in view of Brown. As indicated above, claims 14-18 were canceled. Therefore, these rejections with respect to claims 14-18 are rendered moot. These rejections with respect to the remaining claims 1, 3, 5 and 7-13 are traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1, 3, 5 and 7-13 are not taught or suggested by Nishizawa, Suzuki or Brown whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw these rejections.

Amendments were made to each of the independent claims 1, 3 and 5 so as to more clearly recite that the present invention is directed to a method for transforming data formats between different database management system programs in a system including a host computer and a disk storage

device attached to the host computer and to the host computer and the disk storage device themselves.

According to the present invention as now more clearly recited in the claims provided in the host computer is a database management system program, a computer program application which is executed on the database management system program, a skeleton program for instructing data format transformation and for storing a transformed data volume at the disk storage device connected to the host computer, information for the skeleton program to determine a data transformation program in regard to a data volume in the disk storage device, wherein the information is a table which sets forth corresponding relations between a plurality of data format transformation programs and addresses of the data format transformation programs in the disk storage device.

Further, according to the present invention provided in the disk storage device is a plurality of data format transformation programs each for executing data format transformation and a second communication program for communication with the host computer.

According to the present invention the skeleton program obtains an address of a particular data format transformation program for performing data format transformation of a data volume to a transformed data volume from the table, wherein the address of the particular data format transformation program includes a Logical Unit Number (LUN) and Port Identifier (ID) indicating a particular data volume in the disk storage device where the particular data transformation program is stored.

Further, according to the present invention the skeleton program sends a request to cause execution of the particular data format transformation program on the disk storage device via the communication program at the time of data format transformation to instruct data format transformation and storing, by the disk storage device, the transformed data volume within the disk storage device.

Still further, according to the present invention the particular data format transformation program receives the request and transforms the data volume having a data format of one database management system program on which the computer program application is executed into another data volume having the data format of another database management system program on which another computer program application is executed, wherein the data format for the one database management system program is different from the data format of the another database management system program.

Still further yet, according to the present invention the request includes the address for specifying the particular data format transformation program, an address of source data, a size of data to be transformed and a destination address at which the transformed data volume is to be stored.

Even further still, according to the present invention the host computer retrieves the transformed data volume from the destination address.

The above described features of the present invention now more clearly recited in the claims provide unique advantages over that taught by the conventional apparatus particularly the references of record namely, Nishizawa, Suzuki and Brown. According to the present invention, a balance

in the operations necessary to execute a data format transformation is implemented since the client (Host Computer) has stored therein a table 620 (Fig. 3) which stores addresses of the various data transformation programs that may exist in the disk storage device. Thus, according to the present invention the host computer determines, based upon any number of factors, the particular data format transformation program appropriate for performing the data format transformation and obtains an address including a Logical Unit Number and a Port ID of the location at which the particular data format transformation program is stored in the disk storage device. Such features are clearly not taught or suggested by Nishizawa.

There is absolutely no teaching or suggestion Nishizawa that the host computer 101 or 102 has stored therein a table which indicates corresponding relations between a plurality of data format transformation programs and addresses at which the data format transformation programs are located in the storage device as in the present invention. This feature of the present invention allows for quick action on the part of the disk storage system 108 since the host computer can readily determine which data format transformation program is desired and send a request based upon the selected data format transformation program. Thus, according to the present invention the disk storage device need only perform the data format transformation and provide a response of the results of the data format transformation to the host computer. No other steps that would delay the processing is necessary by the disk storage device since the location of the data format transformation program is indicated in the request as in the present invention as recited in the claims.

Nishizawa teaches, for example, in Fig. 6 thereof that the disk storage device performs a step 603 to determine whether the data conversion program is stored therein, a step 604 to determine whether the client computer provides the data conversion program and a step 605 to determine whether the data conversion program is in a data conversion program server 104. These steps are time consuming and can prove to be unnecessary if the data format conversion program is never located.

The present invention overcomes such disadvantages by providing information in the host computer so that it can select the appropriate data format transformation program. In this way, no requests are issued to the disk storage device where the location of the data format transformation program is unknown or does not exist in the disk storage device. Further, since the table is on the client (Host Computer), the user can freely modify the table as needed to account for changes in the data format transformation being offered.

Thus, the present invention as recited in the claims, particularly as regards the providing a table in the host computer in which corresponding relations are set forth between data format transformation programs and the addresses of the data format transformation programs, is not taught or suggested by Nishizawa.

Further, the present invention provides that the address information of the data format transformation program provided in the table of the host computer includes the LUN and the port ID at which the data format transformation program is stored. There is no teaching or suggestion in Nishizawa that the request includes such information since it is quite apparent

from Fig. 6 thereof that the disk storage device must perform steps 603-605 to determine the exact location of the data format transformation program, with a possibility that the requested data format transformation program may not exist in the system.

Thus, Nishizawa fails to teach or suggest that the host computer includes information for the skeleton program to determine a data format transformation program in regard to data volume in the disk storage device, wherein the information is a table which sets forth corresponding relations between a plurality of data format conversion programs and addresses of the data format transformation programs in the disk storage device as recited in the claims.

Further, Nishizawa fails to teach or suggest obtaining, by the skeleton program an address of a particular data format transformation program for performing data format transformation of a data volume to a transformed data volume from the table, wherein the address of the particular data format transformation program includes a Logical Unit Number (LUN) and Port Identifier (ID) indicating a particular data volume of the disk storage device where the particular data format transformation program is stored as recited in the claims.

Still further, Nishizawa fails to teach or suggest that the request includes the address for specifying the particular data format transformation program, an address of the source data, a size of data to be transformed and a destination address at which the transformed data volume is to be stored and that the host computer retrieves the transformed data volume from the destination address as recited in the claims.

Therefore, as is clear from the above, Nishizawa does not teach or suggest the features of the present invention as now more clearly recited in the claims.

The above described deficiencies of Nishizawa are not supplied by any of the other references of record namely Suzuki and Brown. Therefore, combining Nishizawa with one or more of Suzuki and Brown still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Suzuki was relied upon by the Examiner for an alleged teaching of the contents of the request for data format transformation processing. The Examiner alleges that Suzuki teaches the address of source data, the size of data to be transformed and the destination address. Although Applicants do not agree with the assessment by the Examiner, even if such was true Suzuki does not teach or suggest that the request includes an address for specifying the particular data transformation program in the disk storage device, wherein the address includes a Logical Unit Number and a Port ID indicating a particular data volume in the data storage device where the particular data format transformation program is stored as in the present invention.

Further, there is no teaching or suggestion in Suzuki regarding the above described features of the present invention now more clearly recited in the claims of providing a table in the host computer which sets forth corresponding relations between a plurality of data format transformation programs and addresses of the data format transformation programs in the disk storage device as in the present invention.

Still further, there is no teaching or suggestion in Suzuki wherein an address of a particular data format transformation program is obtained from the table and such address is used as part of the request so as to instruct the particular data format transformation program to conduct a data format transformation as in the present invention.

Thus, Suzuki suffers from the same deficiencies relative to the features of the present invention as Nishizawa. Therefore, combining the teachings of Nishizawa and Suzuki in the manner suggested by the Examiner in the Office Action still fails to teach or suggest the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 1, 3, 5, 7, 8 and 10 as being unpatentable over Nishizawa in view of Suzuki is respectfully requested.

The above noted deficiencies of both Nishizawa and Suzuki are also not supplied by Brown. Therefore, combining Nishizawa with one or more of Suzuki and Brown fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Brown is simply relied upon by the Examiner for an alleged teaching of the use of a main frame and TCP/IP and IP. However, at no point is there any teaching or suggestion in Brown of the above described features of the present invention with respect to the table being provided in the host computer which sets forth corresponding relations between a plurality of data format transformation and addresses of the data format transformation programs programs in the disk storage device, that the addresses of the data format transformation programs in the disk storage device each includes a

Logical Unit Number and a Port ID indicating a particular data volume in the disk storage device where the data format transformation program is stored and that such information is used by the skeleton program so as to instruct the appropriate data format transformation program to conduct a data format transformation.

Thus, as is quite clear from the above, Brown suffers from the same deficiencies as Nishizawa and Suzuki relative to the features of the present invention as now more clearly recited in the claims. Therefore, combining the teachings of Nishizawa with Brown, or with Suzuki and Brown, still fails to teach or suggest the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 9 and 12 as being unpatentable over Nishizawa in view of Brown and the 35 USC §103(a) rejection of claims 11 and 13 as being unpatentable over Nishizawa in view of Suzuki and Brown is respectfully requested.

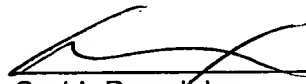
As indicated above, the present Amendment adds new claims 19-23. New claims 19-23 depend from independent claims 1, 3 and 5 and as such include many of the same features shown above not to be taught or suggested by any of the references of record particularly Nishizawa, Suzuki and Brown. Therefore, the same arguments presented above with respect to claims 1, 3 and 5 apply as well to the potential use of the references of record to reject claims 19-23.

In view of the foregoing amendments and remarks, applicants submit that claims 1, 3, 5, 7-13 and 19-23 are in condition for allowance. Accordingly, early allowance of claims 1, 3, 5, 7-13 and 19-23 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (520.39598X00).

Respectfully submitted,

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